Medical and Research Publications
International Open Access

Research Article **Journal of MAR Dental Sciences (Volume 4 Issue 6)**

Knowledge, Attitude and Practices of Indian Dentists during COVID-19

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Received Date: February 25, 2022

Published Date: March 04, 2022

ABSTRACT

Objectives*: The cross sectional study aims to evaluate the Knowledge, attitude and Practices (KAP) of 1394 Indian dental fraternity towards COVID-19.*

Methods*: Data was collected using E survey form which comprised of 2 parts. The first part pertained to information like general demographic details (gender, qualification and place of college/practice). Part two comprised of knowledge (9), attitude questions (13) eliciting what the students and dentist feels regarding current situation and strategies recommended and practice based questions (12) to judge whether they incorporate these preventive strategies in their daily practices. Descriptive statistics were used to summarize the demographic information. Difference between the groups was analysed using chi square test. Pearson correlation test was used to find out the correlation between knowledge, attitude and practice based questions.*

Results*: Difference in adequate knowledge regarding incubation period of the diseases (p=0.04), disposal of medical waste generated by treatment of suspected or confirmed 2019-nCoV patient (p=0.04), attitude towards worrying about suffering from the disease (p=0.006), afraid of disease even after vaccination (p=0.003) and postponing of appointments of patients not requiring immediate care should be postponed (p<0.01) varied significantly among different education levels of dental fraternity.*

Conclusions*: The results revealed a significant positive correlation between knowledge, attitude and practice response given by the study subjects. Extensive educational programs must be done as there were lacunae in the knowledge, attitude and practices towards COVID-19 among the dentists.*

Keywords*- Dental Education, Dental Public Health, Virology, Transmission, Prevention*

Introduction

Chinese Centre for Disease Control and Prevention publically declared Novel Corona virus as the causal pathogen of Covid-191. On 30th January 20202, WHO declared its as a public health emergency. Covid-19 has been recognized in 192 countries and territories around the world and 1 International conveyance i.e. the Diamond Princess Cruise ship harboured in Yokohama, Japan3 till March 22nd 2020. Due to the contagious nature of virus, there are rapidly increasing number of cases4,5. Till now, a large number

of infections in medical staff have been reported too6,7. Due to the peculiar features of dental setting, the cross-infection risk will be high between dental practitioners and patients.

To formulate and implement effective prevention and control strategies of Covid-19 within the dental field, comprehensive knowledge of the same is needed. Due to lack of any previous study and a relevant questionnaire, the present study was one of its own kind to formulate the same. Hence the main aim of the study was to evaluate the knowledge, attitude and practices of BDS third year, final year and interns along with graduates, post graduates and practicing dental professionals towards Covid-19. The hypothesis for the present study was that there will be no difference in knowledge, attitude and practices of different categories of Indian dentist.

Materials and methods

A descriptive cross-sectional study in the form of e-survey (Google Forms) was conducted among BDS Third year, Final year students, interns along with graduates, postgraduates and practicing dental professionals in India, using a 34 item, self-administered close ended pre structured questionnaire during the months of February-March 2020. The subjects were recruited according to the following inclusion and exclusion criteria.

Inclusion Criteria:

1. As in the Indian scenario patient exposure in dental college starts with BDS third year, so dental students of BDS Third year, Final year students, interns, graduates, postgraduates and practicing dental professionals were included in the study.

2. Participants with Android phones.

Exclusion Criteria:

1. Those who did not give consent.

2. BDS first and second year students.

The study protocol was reviewed by the Ethical Committee of Adesh Institute of Dental Science and Research, Bathinda and was granted ethical clearance. An official permission was taken before conducting the study from the Principal of Adesh Dental College. The purpose of the study was fully explained to the participants and the informed consent was obtained.

Sample:

Out of total 2000 links send, 1573 students and dentist responded to that questionnaire with three rounds of follow-ups. Out of 1573, 179 participant's proformas were excluded due to incomplete questionnaire. Hence the final sample consisted of 1394 subjects.

Questionnaire:

The questionnaire was designed to obtain dental participant's responses about knowledge, attitude and practices towards nCoV-19. The first part assessed the general demographic details of the respondents like gender, qualification and place of college/practice. Part two comprised of knowledge (12), attitude (14) and practice-based questions (15). Knowledge and attitude-based questions elicited what the students and dentist feel regarding current situation while practice-based questions judged whether they incorporate these preventive strategies in their daily practices.

The survey questionnaire was pretested (pilot-survey) by giving it to 50 respondents. The comprehensiveness of the instrument was tested by asking about difficulties in understanding items or frequencies, in order to optimize the face and content validity before the main study. The reliability was assessed using Cronbach's coefficient. Reproducibility was evaluated by measuring test-retest reliability. It was calculated using intraclass correlation coefficient. The overall value of Cronbach's alpha (α) coefficient of the questionnaire was estimated to be 0.83, indicating good internal consistency. These questions were excluded from the main study. The homogeneity of the questionnaire was evaluated on the basis of the corrected item and total correlation coefficients. These analyses computed the correlation between each question in the questionnaire. The corrected correlation coefficients values were above 0.23 that has been recommended for including a question in the questionnaire. However, three knowledge, one attitude and three practice based questions Cronbach's alpha was <0.60. Hence the final questionnaire comprised of 9 knowledge, 13 attitude and 12 practice based questions.

Statistical Analysis:

The data was transferred from prefilled proforma to excel sheet for the purpose of data analysis. 95% confidence interval was used to find significance of proportion of KAP's. Descriptive statistics were used to summarize the demographic information. Data was analyzed using Statistical Package for Social Sciences (SPSS) software program (version 24). Difference between the groups was analysed using chi square test. Pearson correlation test was used to find out the correlation between knowledge, attitude and practice-based questions. The level of significance (p) was set at <0.05.

Results:

A total of 1394 dental health professionals answered the questionnaire providing the response rate of 69.7%. Majority of them were females (71.8%) and belonged to undergraduate category (66.47%) followed by private practitioners (13.37%) as shown in table 1.

Level of education	Gender				Total	
	Female		Male			
	N	%	N	%	N	%
Practitioners	134	13.37	91	23.21	225	16.14
Academicians	112	11.18	75	19.13	187	13.41
Post graduate students	90	8.98	27	6.89	117	8.39
Undergraduates	666	66.47	199	50.77	865	62.05
Total	1002	100.00	392	100.00	1394	100.00

Table 1: Characteristics of subjects according to level of education and gender

The present situation of CoVID-19 knowledge among dental fraternity is displayed in table 2. Overall participants exhibited good knowledge regarding zoonotic emergence of Covid-19 (66.21%), virus as a causative agent (99.14%), source of infection (87.37%), incubation period of COVID 19 (82.42%), ways of control in dental settings (95.91%) and transmission of n-CoV 2019 in dental clinics (85.44%). Maximum knowledge regarding WHO declaration of COVID-19 as a health emergency on 30-01-2020 was exhibited by postgraduate students (49.57%) followed by academicians (42.25%) and minimum by practitioners (16.89%) followed by undergraduate students (6.59%) with statistically significant difference ($p<0.01$). Difference in adequate knowledge regarding incubation period of the diseases ($p=0.04$) and disposal of medical waste generated by treatment of suspected or confirmed 2019-nCoV patient ($p=0.04$) was also found to vary statistically among the groups.

Table 3 shows attitude regarding Covid-19 according to level of education. Majority of the respondents believed COVID-19 to be dangerous (89.74%) and was hindering their daily activities (75.65%). More than 50% respondents believed that the measures taken by government are not enough to contain the disease.

Questions	Practitioners N=225		Academicians N=187		Post graduates N=117		Undergraduates N=865		Total N=1394	
	N	%	N	%	N	%	N	%	N	%
Coronovirus is by										
Poultry	24	10.67	14	7.49	6	5.13	81	9.36	125	8.97
Rodents	13	5.78	9	4.81	10	8.55	83	9.60	115	8.25
Zoonotic	164	72.89	137	73.26	90	76.92	532	61.50	923	66.21
Don't know	24	10.67	27	14.44	11	9.40	169	19.54	231	16.57
p value	0.23									
COVID-19 is caused by										
Bacteria	4	1.78	0	0	0	0	8	0.92	12	0.86
Virus	221	98.22	187	100	117	100	857	99.08	1382	99.14
p value	0.79									
Source of Infection										
Direct Transmission	25	11.11	22	11.76	5	4.27	65	7.51	117	8.39
Infected person	7	3.11	9	4.81	3	2.56	40	4.62	59	4.23
Both	193	85.78	156	83.42	109	93.16	760	87.86	1218	87.37
p value	0.72									
WHO declared COVID-19 a health emergency on 30-01-2020										
Yes	38	16.89	79	42.25	58	49.57	57	6.59	232	16.64
No	187	83.11	108	57.75	59	50.43	808	93.41	1162	83.36
p value	**<0.01***									
Incubation period										
1-7 Days	48	21.33	6	3.21	13	11.11	84	9.71	151	10.83
1-14 Days	165	73.33	175	93.58	97	82.91	712	82.31	1149	82.42
>14 Days	12	5.33	6	3.21	7	5.98	69	7.98	94	6.74
p value	0.04*									
Way of infection control in dental setting										
Hand hygiene	2	0.89	5	2.67	0	0	13	1.50	20	1.43
PPE	5	2.22	5	2.67	2	1.71	25	2.89	37	2.65
Both	218	96.89	177	94.65	115	98.29	827	95.61	1337	95.91
p value	0.87									
Clinical symptoms										

Fever, Cough	104	46.22	75	40.11	60	51.28	432	49.94	671	48.13
Headache, diarrhea	0	0.00	0	0.00	0	0	3	0.35	3	0.22
Myalgia or Fatigue	0	0.00	2	1.07	0	0	0	0.00	2	0.14
All of Above	121	53.78	110	58.82	57	48.72	430	49.71	718	51.51
p value	0.77									
Medical waste generated by treatment of suspected or confirmed 2019-nCoV patient										
Double layered red bag with marked surfaces	98	43.56	60	32.09	41	35.04	372	43.01	571	40.96
Double layered yellow bag and gooseneck ligation	87	38.67	83	44.39	54	46.15	259	29.94	483	34.65
Dumping	22	9.78	19	10.16	14	11.97	137	15.84	192	13.77
None of the above	18	8	25	13.37	8	6.84	97	11.21	148	10.62
p value	**0.04***									
Transmission of 2019-nCoV in dental clinics										
Direct contact (blood, oral fluids etc)	13	5.78	10	5.35	3	2.56	40	4.62	66	4.73
Face to face communication with patients	18	8	13	6.95	2	1.71	54	6.24	87	6.24
Indirect contact with infected instruments or environmental surfaces	4	1.78	3	1.60	2	1.71	41	4.74	50	3.59
All of the above	190	84.44	161	86.10	110	94.02	730	84.39	1191	85.44
p value	0.11									

Table 2: Knowledge regarding Covid-19 according to level of education

Questions	Practitioners N=225		Academician N=187		Post graduates N=117		Undergraduates N=865		Total N=1394	
	N	%	N	%	N	%	N	%	N	%
Is COVID-19 dangerous?										
No	21	9.33	19	10.16	5	4.27	98	11.33	143	10.26
Yes	204	90.67	168	89.84	112	95.73	767	88.67	1251	89.74
p value	0.83									
Do you worry about suffering from COVID-19										
No	37	16.44	32	17.11	17	14.53	209	24.16	295	21.16
Yes	188	83.56	155	82.89	100	85.47	656	75.84	1099	78.84
p value	**0.006***									
Daily activities hindered by COVID-19?										
No	57	25.33	42	22.46	33	28.21	207	23.93	339	24.32
Yes	168	74.67	145	77.54	84	71.79	658	76.07	1055	75.68
p value	0.75									
Protective measures suggested by WHO enough for prevention?										
No	55	24.44	35	18.72	29	24.79	249	28.79	368	26.40
Yes	170	75.56	152	81.28	88	75.21	616	71.21	1026	73.60
p value	0.17									
Will you be afraid of nCoV-2019 even if vaccines present?										
No	155	68.89	135	72.19	87	74.36	709	81.97	1086	77.91
Yes	70	31.11	52	27.81	30	25.64	156	18.03	308	22.09
p value	**0.003***									
Will you take vaccines if developed?										
No	16	7.11	12	6.42	9	7.69	33	3.82	70	5.02
Yes	209	92.89	175	93.58	108	92.31	832	96.18	1324	94.98
p value	0.15									
Wish to be updated with news and facts of this disease?										
No	6	2.67	11	5.88	6	5.13	18	2.08	41	2.94
Yes	219	97.33	176	94.12	111	94.87	847	97.92	1353	97.06
p value	**0.006***									
Will you continue to take standard precautions?										
No	0	0	0	0	0	0	4	0.46	4	0.29
Yes	225	100	187	100	117	100	861	99.54	1390	99.71
p value	0.45									

Will you seek medical attention if you have fever, cough and difficulty breathing?										
No	3	1.33	0	0	3	2.56	22	2.54	28	2.01
Yes	222	98.67	187	100	114	97.44	843	97.46	1366	97.99
p value	0.13									
Measures taken by government are enough?										
No	99	44	83	44.39	56	47.86	527	60.92	765	54.88
Yes	126	56	104	55.61	61	52.14	338	39.08	629	45.12
p value	**<0.01***									
Appointments for patients not requiring immediate care should be postponed?										
No	54	24	26	13.90	20	17.09	266	30.75	366	26.26
Yes	171	76	161	86.10	97	82.91	599	69.25	1028	73.74
p value	**<0.01***									
Media updates create panic rather than awareness?										
No	43	19.11	58	31.02	34	29.06	188	21.73	323	23.17
Yes	182	80.89	129	68.98	83	70.94	677	78.27	1071	76.83
p value	0.04*									
China is responsible for this disease?										
No	40	17.78	41	21.93	22	18.80	220	25.43	323	23.17
Yes	185	82.22	146	78.07	95	81.20	645	74.57	1071	76.83
p value	**0.003***									

Table 3: Attitude regarding Covid-19 according to level of education

Questions	**Practitioners N=225**		**Academician N=187**		**Post graduates N=117**		**Undergraduates N=865**		**Total N=1394**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
You cover your mouth and nose with the face mask regularly?										
No	34	15.11	70	37.43	24	20.51	236	27.28	364	26.11
Yes	191	84.89	117	62.57	93	79.49	629	72.72	1030	73.89
p value	**<0.01***									
Regularly and thoroughly cleaning your hands										
No	9	4.00	11	5.88	0	0	46	5.32	66	4.73

Yes	216	96.00	176	94.12	117	100	819	94.68	1328	95.27
p value	0.19									
Maintaining 1 meter distance between yourself and anyone who is coughing or sneezing?										
No	21	9.33	37	19.79	20	17.09	132	15.26	210	15.06
Yes	204	90.67	150	80.21	97	82.91	733	84.74	1184	84.94
p value	**0.002***									
Covering your mouth and nose with your bent elbow or tissue while coughing or sneezing?										
No	13	5.78	12	6.42	14	11.97	46	5.32	85	6.10
Yes	212	94.22	175	93.58	103	88.03	819	94.68	1309	93.90
p value	**0.02***									
Disposing used tissues immediately and properly?										
No	12	5.33	17	9.09	8	6.84	34	3.93	71	5.09
Yes	213	94.67	170	90.91	109	93.16	831	96.07	1323	94.91
p value	**<0.01***									
Avoiding visit crowded places?										
No	9	4.00	13	6.95	10	8.55	105	12.14	137	9.83
Yes	216	96.00	174	93.05	107	91.45	760	87.86	1257	90.17
p value	**<0.01***									
Postponing patient appointments?										
No	86	38.22	42	22.46	46	39.32	159	18.38	333	23.89
Yes	139	61.78	145	77.54	71	60.68	706	81.62	1061	76.11
p value	**<0.01***									
Informing others about latest developments for nCoV-2019?										
No	15	6.67	13	6.95	0	0	35	4.05	63	4.52
Yes	210	93.33	174	93.05	117	100	830	95.95	1331	95.48
p value	0.09									
Avoiding physical contact while greeting?										
No	11	4.89	10	5.35	2	1.71	113	13.06	136	9.76
Yes	214	95.11	177	94.65	115	98.29	752	86.94	1258	90.24
p value	**<0.01***									
Avoiding touching your eyes, nose and mouth after hand shaking?										
No	16	7.11	18	9.63	9	7.69	102	11.79	145	10.40
Yes	209	92.89	169	90.37	108	92.31	763	88.21	1249	89.60
p value	**0.04***									0.00
Are you supporting your patients or one another?										
No	7	3.11	6	3.21	5	4.27	32	3.70	50	3.59

Yes	218	96.89	181	96.79	112	95.73	833	96.30	1344	96.41
p value	0.09									
Disinfecting equipment, working area at least once a day?										
No	11	4.89	15	8.02	10	8.55	50	5.78	86	6.17
Yes	214	95.11	172	91.98	107	91.45	815	94.22	1308	93.83
p value	0.32									

Table 4: Practices regarding Covid-19 according to level of education

Variables	**Knowledge**		**Attitude**		**Practice**	
	r value	**p value**	**r value**	**p value**	**r value**	**p value**
Knowledge	-	-	0.37	**0.006***	0.48	**<0.01***
Attitude	0.37	**0.006***	-	-	0.40	**0.002***
Practice	0.48	**<0.01***	0.40	**0.002***	-	-

Table 5: Correlation between knowledge, attitude and practice in relation to Covid-19

Around 76.83% believed that media updates create panic rather than awareness also at the same time, majorities i.e. 97.06% wish to remain updated and surprisingly 76.83% believed that China is responsible for this disease. Attitude towards worrying about suffering from the disease (p=0.006), afraid of disease even after vaccination (p=0.003) and postponing of appointments of patients not requiring immediate care should be postponed (p<0.01) varied significantly among different education levels of dental fraternity.

Table 4 shows practices regarding containment of Covid-19 according to level of education. As much as 73.89% respondents covered their mouth and nose with face mask, 95.27% were maintaining 1 meter distance between themselves and anyone who is coughing or sneezing and 93.9% covered their mouth and nose with their bent elbow or tissue whi1le coughing or sneezing. Majority of them avoided visiting crowded places (90.17%), avoided physical contact while greeting (90.24%) and if hand shaked, avoid touching their eyes, nose and mouth (89.60%). The difference among groups according to level of education was also found to be statistically significant (p<0.05).

Pearson correlation analysis revealed a significant positive correlation between knowledge, attitude and practice response given by the study subjects (table 5).

Conclusion

It can be concluded that dental students and professionals had good knowledge, positive attitude and healthy practices towards containment of Covid-189. Still there are few lacunae requiring improvement. Large scale educational programmes for Covid-19 must be initiated from professional bodies to reinforce the knowledge to influence their behaviour positively.

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